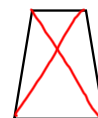
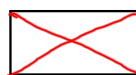


Chapter 8 Quadrilaterals

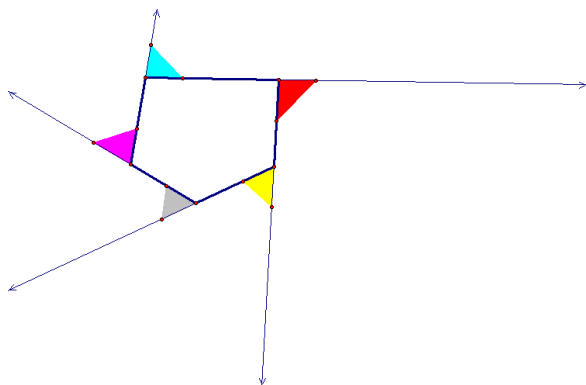
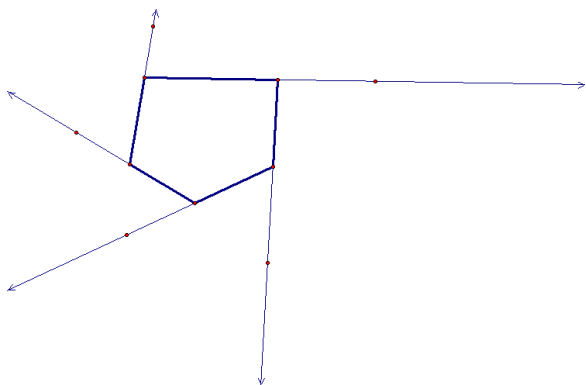
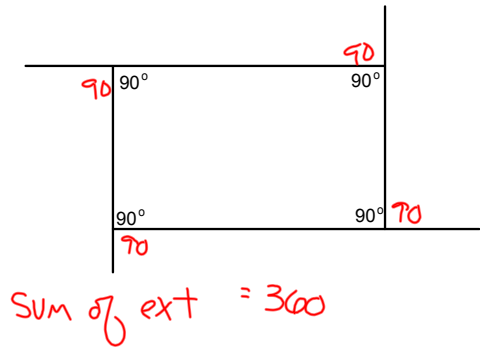
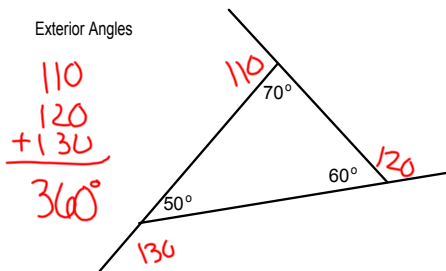
8-1 Angles of a Polygon

diagonal--segment that connects nonconsecutive vertices



Theorem 8.1 Interior Angle Sum Theorem
In a convex polygon with n sides, the sum of the interior angles is $(n-2)180$.

sides	3	4	5	6	n
# of \triangle	1	2	3	4	$n-2$
degrees	180	360	540°	720	$(n-2)180$



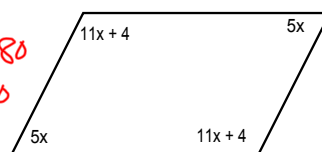


Theorem 8.2 Exterior Angle Sum Theorem--
In a convex polygon, the sum of the measures of
the exterior angles, one at each vertex, is 360



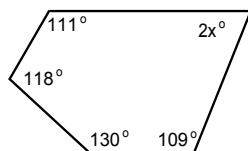
Solve for x.

$$\begin{aligned} (n-2)180 \\ (4-2)180 \\ =360 \end{aligned}$$



$$\begin{aligned} 2(11x+4) + 2(5x) &= 360 \\ 22x + 8 + 10x &= 360 \\ 32x + 8 &= 360 \\ 32x &= 352 \\ x &= 11 \end{aligned}$$

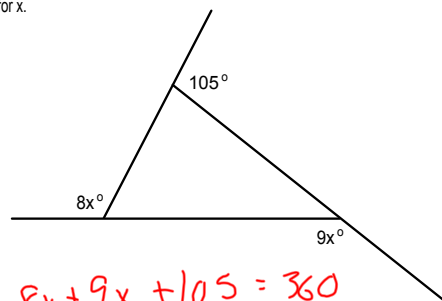
Solve for x.



$$(n-2)180 \\ = 540$$

$$x = 36$$

Solve for x.



$$8x + 9x + 105 = 360 \\ 17x = 255 \\ x = 15$$

Regular Polygon--Both equilateral and equiangular

n	6
interior angle sum	$(n-2)180$ 720°
exterior angle sum	360°
Regular	$\frac{720}{6} = 120^\circ$
each interior angle	
each exterior angle	$\frac{360}{6} = 60^\circ$ $\frac{180}{6}$

n	10
interior angle sum	$(10-2)180$ 1440°
exterior angle sum	360°
<u>Regular</u>	
each interior angle	144°
each exterior angle	36°

n	15
interior angle sum	2340°
exterior angle sum	360
<u>Regular</u>	
each interior angle	156°
each exterior angle	$180 - 156 = 24^\circ$

$\frac{360}{24} = n$
 $15 = n$

*

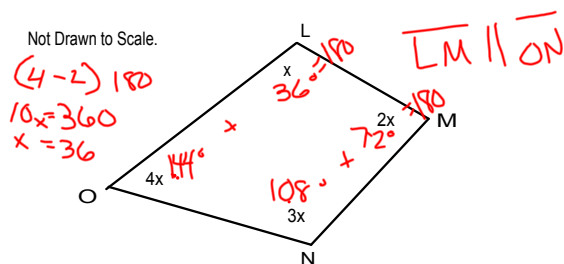
n	30
interior angle sum	5040°
exterior angle sum	360°
<u>Regular</u>	
each interior angle	168°
each exterior angle	12°

$\frac{360}{12} = n$

n	27
interior angle sum	4500°
exterior angle sum	360
<u>Regular</u>	
each interior angle	$166\frac{2}{3}^\circ$
each exterior angle	$13\frac{1}{3}^\circ$

$\frac{360}{(40/3)} = n$
 $360 \cdot \frac{3}{40}$

	DO: #1	#2
n	12	24
interior angle sum	1800°	3960°
exterior angle sum	360	360
<u>Regular</u>		
each interior angle	150°	165°
each exterior angle	30°	15°



Which sides are parallel?

HW

p407-408

13, 15, 17, 21-23, 27-29, 31, 32,

34, 37-40